

that can be answered merely by reference to the ordinary text-books, or by personal experiments. The student is supposed to have some simple apparatus by means of which the necessary experiments can be made. The pamphlet is very suggestive, and something like it, on a larger scale, would be welcome to many teachers, although nothing can quite take the place of a teacher's personal ingenuity and ability.

#### RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

H. H. KIMBALL, Librarian.

The following titles have been selected from among the books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be loaned for a limited time to officials and employees who make application for them.

**Bombicci, Luigi.**

Di talune recenti idee sulla formazione della grandine e della pretesa potenza dei vorticelli degli spari grandinifughi. 44 pp. f°. Bologna. 1901.

**Borea, Eligio.**

Gli spari contro la grandine. 36 pp. 8°. Pavia. 1899.

**Commission Royale pour la Mesure d'un Arc de Méridien au Spitzberg.**

Missions scientifiques pour la mesure d'un arc de méridien au Spitzberg entreprises en 1899-1902 sous les auspices des gouvernements suédois et russe. Mission suédoise. Tome II. VIII section. Météorologie. v. p. f°. Stockholm. 1903-1906.

**Egypt. Survey Department.**

Meteorological report for the year 1903. 211 pp. 12°. Cairo. 1905.

**Ginestous, G.**

Étude sur le climat de la Tunisie. (Extrait du Bulletin de la Direction de l'Agriculture et du Commerce.) 177 pp. 8°. Tunis. 1903.

**Hadley Climatological Laboratory.**

Evaporation from water surfaces from Albuquerque, N. M. (Bulletin, vol. 3, No. 10.) 14 pp. 8°. Albuquerque, N. M. 1905.

**Hamburg. Deutsche Seewarte.**

Jahresbericht über die Tätigkeit... iv, 51 pp. 4. Hamburg. 1906.

**Hongkong Observatory.**

Meteorological observations, 1905. (17), 108 pp. f°. Hongkong. 1906.

**Krakau. Observatorium.**

Materiały zebrane przez Sekcje meteorologiczna w roku 1904. 73 pp. 8°. n. p. n. d.

**Kremsmünster. Sternwarte.**

Resultate... 1904... meteorologischen Beobachtungen. 28 pp. 8°. Wels. 1905.

**Lausanne. Institut Agricole. Station Météorologique du Champ-de-l'Air.**

Observations météorologiques. 1905. ix, 42 pp. 4°. Lausanne. 1906.

**Modena. Università. Osservatorio Geofisico.**

Osservazioni meteorologiche 1901-1902. 113 pp. f°. Modena. 1906.

**Montessus de Ballore, F[ernand].**

Les tremblements de terre. Géographie séismologique. v, 475 pp. 8°. Paris. 1906.

**Netherlands. Koninklijk Nederlandsch Meteorologisch Instituut.**

Jaarboek. 1904. xxxiv, 244 pp. f°. Utrecht. 1906.

Mededeelingen en Verhandelingen. 1-4. v. p. 8°. Utrecht. 1906.

**Rüggenbach, A[lbert].**

Die bei Regenmessungen wünschbare und erreichbare Genauigkeit. (S. A.-Verh. Natf. Ges., Basel. Teil VIII, Heft 3, 1888.) Pp. 579-590. 8°.

**Royal Society of New South Wales.**

Journal and Proceedings, 1904. v. p. 8°. Sydney. 1904.

**Shaw, W[illiam] N[apier] and Lempfert, R. G. K.**

The life history of surface air currents. A study of the surface trajectories of moving air. (Great Britain M. O. 174.) 107 pp. f°. London. 1906.

**Sonnblick-Verein.**

Jahresbericht... 1905. 50 pp. 4°. Wien. 1906.

**Stewart, Charles M.**

The meteorology of South Africa. 42 pp. 8°. n. p. [1905.]

**Stonyhurst College Observatory.**

Results of meteorological and magnetical observations... 1905. vi, 55 pp. 12°. Clitheroe. 1906.

**Thevenet, A.**

Essai de climatologie algérienne. 118 pp. f°. Alger-Mustapha. 1896

**Wiesner, J[ulius].**

Beiträge zur Kenntnis des photochemischen Klimas des Yellowstone-Gebietes... 14 pp. f°. Wien. 1906.

**Württemberg. Königliches Württembergisches Meteorologisches Zentral-station.**

Deutsches meteorologisches Jahrbuch 1903. 58 pp. f°. Stuttgart. 1906.

#### RECENT PAPERS BEARING ON METEOROLOGY.

H. H. KIMBALL, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —

**Electrical World and Engineer.** New York. Vol. 47. June 2, 1906.

— Lightning arresters. Pp. 1106-1107.

**Journal of the Meteorological Society of Japan.** Tokyo. 25th year. Feb., Apr., 1905.

**Mukasa, H.** Das Temperaturverhältnis von Tsimulpo, Korea. Pp. 1-6.

**Okada, T.** Contributions to the studies of psychrometer covering. Pp. 1-10.

**Journal and Proceedings of the Royal Society of New South Wales.** Sydney. Vol. 38, 1904.

**Jensen, H. I.** Possible relations between sun spots and volcanic and seismic phenomena. Pp. 40-90.

**Journal of the Scottish Meteorological Society.** Edinburgh. 3d series. No. 22.

**Halm, J[acob].** On the relations between the diurnal changes of temperature and atmospheric pressure. Pp. 191-214.

— [Meteorological returns from Hebron.] P. 234.

— [Meteorological returns from Christmas Island.] P. 234.

**Nature.** London. Vol. 74. May 10, 1906.

**Dines, W. H.** Balloons and kites in the service of meteorology.

**Proceedings of the Royal Society.** London. Series A. Vol. 77. No. 518.

**Chree, C.** A discussion of atmospheric electrical potential results at Kew, from selected days during the seven years 1898 to 1904. Pp. 385-387.

**Dines, W. H.** The vertical temperature gradients on the west coast of Scotland and at Oxshott, Surrey. Pp. 440-450.

**Quarterly Journal of the Royal Meteorological Society.** London. Vol. 32. April, 1906.

**Bentley, Richard.** The meteorology of daily life. Pp. 81-112.

**Mawley, Edward.** Report on the phenological observations for 1905. Pp. 113-139.

**Dallas, W. L.** Brief discussion of the general features of the pressure and wind conditions over the trades-monsoon area. Pp. 141-150.

**Newton, William B.** The dispersion or prevention of fogs. Pp. 151-155.

**Hann, J[ulius].** The temperature of cyclones and anticyclones. [Translated by R. H. Scott.] Pp. 162-168.

**Scientific American.** New York. Vol. 94. June 16, 1906.

— European earthquake recorders. P. 498.

**Scientific American Supplement.** New York. Vol. 61. May 25, 1906.

— Relative total heat received from sun and sky during any day by horizontal surfaces. P. 25418.

**Symons's Meteorological Magazine.** London. Vol. 41. May, 1906.

— The green flash in fiction. Pp. 68-70.

**Archives des Sciences Physiques et Naturelles.** Genève. 4 période. Tome 21.

**Dufour, Henri.** La conductibilité de l'air dans les locaux habités. Pp. 361-367.

**Comptes Rendus de l'Académie des Sciences.** Paris. Tome 142. 14 Mai 1906.

**Maillet, Edmond.** Sur les grandes crues de saison froide dans les bassins de la Seine et de la Loire. Pp. 1111-1113.

**Revue Néphologique.** Mons. Mai 1906.

**Farman, —.** Pocky clouds and statoscope. Pp. 34-35.

**Annalen der Hydrographie und Maritimen Meteorologie.** Berlin. 34 Jahrgang. Heft 5, 1906.

**Meinardus, Wilhelm.** Periodische Schwankungen der Eistrift bei Island. Pp. 227-239.

**B., v. d.** Ein Wirbelsturm im Tuamotu- (Paumotu-) Archipel vom 12. bis 14. März 1905. Pp. 243-244.

— Taifun in der südlichen Formosa-Strasse am 1. und 2. Juli 1905. Pp. 244-246.

**Annalen der Physik.** Leipzig. 4 Folge. Band 20. Heft 1, 1906.

**Schering, Harald.** Der Elster-Geitelsche Zerstreuungsapparat und ein Versuch quantitativer absoluter Zerstreuungsmessung. Pp. 174-195.

**Beiblätter zu den Annalen der Physik.** Leipzig. Band 20. Heft 10, 1906.

**H[asenöhr]l, [F.]** Zur Theorie des von einer kreisförmigen Licht-

- quellen erzeugten Regenbogens. [Abstract of article by J. M. Perner.] P. 538.
- H[asenöhr]l.** [F.] Erklärung des fälschlich "weisser Regenbogen" benannten Bouguerschen Halos. [Abstract of article by J. M. Perner.] Pp. 538-539.
- Gaea. Leipzig.** 42 Jahrgang. Juni, 1906.
- Klein.** — Die Neuordnung des telegraphischen Witterungsdienstes in Deutschland. Pp. 331-339.
- Benutzung der atmosphärischen Elektrizität. Pp. 375-376.
- Elektrische Ladung oberirdischer Freileitungen durch Schneeflocken. P. 376.
- Einfluss des Sonnenlichtes auf die Bevölkerung. Pp. 379-380.
- Himmel und Erde. Berlin.** 18 Jahrgang. Apr., 1906.
- Gallenkamp, W.** Die Ergebnisse neuerer Regenforschung. Pp. 306-317.
- Illustrierte Aeronautische Mitteilungen. Strassburg.** 10 Jahrgang. Apr., 1906.
- Ujanin, W.** Drachenstation am magnetisch-meteorologischen Observatorium der Universität Kasan. Pp. 159-163.
- 14th Jahresbericht des Sonnbllick-Vereines. 1905. Wien.**
- Stanislaus Kostlivy. Pp. 3-6.
- Obermayer, A[libert] von.** Das Observatorium Regina Margherita auf dem Monte Rosa, 4560 m. Pp. 6-16.
- Das Kodaiakánal-Observatorium in Südindien. Pp. 16-18.
- Resultate der meteorologischen Beobachtungen auf dem Sonnbllick, in Bucheban, im Mallnitz und auf der Zugspitze. Pp. 33-34.
- Meteorologische Zeitschrift. Braunschweig.** 23 Band. Mai, 1906.
- Ficker, Heinz von.** Der Föhn vom 4. bis 6. November 1905 in den Ostalpen. Pp. 193-200.
- Grossman, [Louis Adolph].** Die horizontale Komponente der ablenkenden Kraft der Erdrotation. Pp. 200-209.
- Friesenhof, Gregor.** Die Luftdruckgebilde der unteren und der oberen Atmosphäre und ihr Zusammenhang. Pp. 209-214.
- Hann, J[ulius].** Klima von Port au Prince, Haiti. Pp. 220-222.
- Mazelle, Eduard.** Vesuviasche in Cattaro. Pp. 223-224.
- Vesuviasche in Paris. P. 225.
- Defant, A.** Messungen der Elektrizitätszerstreuung in Innsbruck. Pp. 229-231.
- Klein.** — Die doppelte Bewegung der Cirrusstreifen. Pp. 231-232.
- Jährliche Periode der Erdbebenstörungen in Triest. P. 232.
- Rethy, A.** Die meteorologische Station auf der Bablagura. P. 235.
- Lottermoser, Eckhard.** Mittlerer Regenfall in Südguatemala. P. 234.
- Mitteilungen von Forschungsgesandten und Gelehrten aus den Deutschen Schutzbieten. Berlin.** 18 Band. 4 Heft.
- Hann, J[ulius].** Die tägliche Gang der Temperatur in Windhuk. Der tägliche Gang des Luftdruckes zu Windhuk. Pp. 30-39.
- Heidke, P.** Meteorologische Beobachtungen aus Deutsch-Ostafrika. Zusammenstellungen vom Monats- und Jahresmittel aus den Jahren 1899 bis 1902 von 22 Beobachtungsstationen. Pp. 40-106.
- Hann, J[ulius].** Der tägliche Gang der Temperatur in Herbertshöhe. Pp. 107-112.
- Naturwissenschaftliche Rundschau. Berlin.** 21 Jahrgang. 10, 17 Mai, 1906.
- Geitel, H.** Ueber die spontane Ionisierung der Luft und anderer Gase. Pp. 237-240; 251-253.
- Physikalische Zeitschrift. Leipzig.** 7 Jahrgang. 15 Mai, 1 Juli 1906.
- Costanzo, G. and Negro, C.** Ueber die Radioaktivität des Schnees. Pp. 350-353.
- Elster, J[ulius] and Geitel, H.** Zwei Versuche über die Verminderung der Ionenbeweglichkeit im Nebel. Pp. 370-371.
- Das Weltall. Berlin.** 6 Jahrgang. Mai 15, 1906.
- Stenzel, Arthur.** Der Lavastub des Vesuv und seine Wirkungen in der Atmosphäre. Pp. 257-260.
- Wiener Luftschiffer Zeitung. Wien.** 5 Jahrgang. Mai, 1906.
- Kohn, Oswald.** Der Erfahrungskoeffizient 2 der Luftwiderstandsfomel. Pp. 96-98.
- Einfluss der Höhe auf das Blut. Pp. 110-112.
- Hemel en Dampkring. Amsterdam.** 4 Jahrgang. Mei, 1906.
- Smits, P. J.** Bijdrage tot de kennis van den regenval in Nederlandsch-Indië. Pp. 1-8.
- Hissink, C. W.** De halo's en het weder. Pp. 8-10.
- De wedstrijd in weervoorspelling te Lutk in September 1905. Pp. 10-12.
- Netherlands. Koninklijk Nederlandsch Meteorologisch Institut. Mededeelingen en Verhandelingen. Utrecht.** [Nos.] 2-4, 1905.
- Institut Météorologique Royal des Pays-Bas. A. Organisation et disposition. B. Succursales. [No.] 1. 57, 82 pp.
- Wind, C. H.** Graphische Tabellen zur Bestimmung des Luftdruckgradienten. [Nos.] 2-4. Pp. 1-9.

#### A DESTRUCTIVE LOCAL STORM NEAR PARIS, ILL.

By DR. E. O. LAUGHLIN. Dated Paris, Ill., June 2, 1906.

About 10 p. m., Wednesday, May 30, there occurred in this locality a notable storm, which, while evincing much of the

destructiveness within a small area and many of the freaks of a tornado, yet seems to have lacked the twisting motion.

The morning of the 30th was ushered in by a gentle shower. At 7 a. m. the temperature was 52° F., the barometer reading 29.95 and the wind direction southeast. During the day the temperature increased to a maximum of 84° F. and the wind became almost a gale, while the barometer remained stationary. Light showers occurred at intervals.

At 6 p. m. a violent thunderstorm came up from the northwest, with some wind and much lightning. The clouds were quite threatening, flying in different directions, tumbling and intermingling in a way suggestive of the tornado. No damage was done by this storm, however, and by 8 o'clock the sky was again serene, except for a cloud bank in the northwest, from which came constant flashes of lightning.

At 10 p. m. another electric storm broke, accompanied by vivid lightning and some wind and hail, but doing no great amount of damage here in the city. Six miles southwest of here this storm developed a destructive intensity. A modern, strongly built schoolhouse was completely demolished and its foundation swept clean. Immediately southwest of this schoolhouse was a grove of some twenty acres; most of the trees in this grove were blown down, many of them being second-growth hickories, eight or ten inches in diameter. Half a mile east of the schoolhouse a large residence was badly wrecked, a smokehouse some twelve feet square having been hurled bodily against it, crushing in one entire side. This house was also struck twice by lightning during the storm, yet none of its inmates were injured.

A dozen other houses in the path of the storm were more or less damaged, some being only unroofed, while others were moved off their foundations or destroyed.

The storm came from the northwest, and a careful survey of the area of destruction, which comprises a path one-half mile wide and some two miles long, shows no evidence of any whirling or twisting force. An old abandoned school building, 60 feet west of the wrecked schoolhouse, was very slightly injured. A coal shed just north of the schoolhouse was moved some ten feet, but not damaged. This coal shed is interesting as showing the terrific force of the hail which accompanied the storm. Every square inch of the surface of its west wall, composed of hard pine, has been battered and indented, frequently to the depth of a quarter of an inch; the shingle roof also shows these imprints.

This storm seems unusual for its concentrated destructiveness without any whirling action, and for the fact that it came from the northwest and that the barometric pressure during its passage was not low. As no weather map was issued for Decoration Day, I do not know the general conditions. The chart for the following day<sup>1</sup> shows a low central at Duluth, Minn., with a pressure of 29.75 inches and a trough-like depression extending into Texas.

#### THE KODAIKÁNAL SOLAR PHYSICS OBSERVATORY.

By HERBERT H. KIMBALL, Librarian, Weather Bureau.

The establishment of this observatory marks another step forward in the persistent efforts of the government of India to find the relation that is supposed to exist between solar processes and meteorological conditions on the earth.

As early as 1881, Mr. Blanford, then Meteorological Reporter to the government of India, recommended "the improvement of the work of solar observations in order to obtain accurate measures of the sun's heating power at the earth's surface and its periodic variations".

<sup>1</sup> The weather map for the day following, showing conditions at 7 a. m., central standard time, only about nine hours after the storm occurred, probably presents more nearly the conditions at the hour when the storm came than the map of the day itself would do.—EDITOR.

<sup>1</sup> Report on the Administration of the Meteorological Department of the government of India in 1900-1901, p. 19.